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10/589,994	05/17/2007	James Robert Smith	M04B113	7073

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EXAMINER	
RAPHAEL, COLLEEN M	
ART UNIT	PAPER NUMBER
1724	

NOTIFICATION DATE	DELIVERY MODE
06/23/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

LORETTA.SANDOVAL@EDWARDSVACUUM.COM

Office Action Summary	Application No.	Applicant(s)	
	10/589,994	SMITH ET AL.	
	Examiner	Art Unit	
	COLLEEN M. RAPHAEL	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 April 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-65* is/are pending in the application.

4a) Of the above claim(s) *39-48* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38 and 49-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/16/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. Claims 1-65 are current in the application. Claims 1-38 and 49-65 are currently under examination. Claims 39-48 have been withdrawn as subject to a restriction requirement.

Priority

2. Applicant is advised of possible benefits under 35 U.S.C. 119(a)-(d), wherein an application for patent filed in the United States may be entitled to the benefit of the filing date of a prior application filed in a foreign country.

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on August 18, 2006 was filed on the mailing date of the application on August 18, 2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Election/Restrictions

5. Applicant's election with traverse of Group I in the reply filed on April 14, 2011 is acknowledged. The traversal is on the ground(s) that the restriction between the method and the apparatus is improper. This is not found persuasive because the apparatus of the present application can be used to practice a different method, e.g. treatment of NO_x and/or CO by OH- and H+ ions within a gas stream. See, e.g. US 6,517,794 B2 (Method for Removing Nitrogen Oxides from an Oxygen-Containing Flue Gas Stream); US 6,139,694 (Method and Apparatus Utilizing Ethanol in Non-Thermal Plasma Treatment of Effluent Gas); US 6,038,853 (Plasma-Assisted Catalytic Storage Reduction System); US 6,048,500 (Method and Apparatus for Using Hydroxyl to Reduce Pollution in the Exhaust Gases from the Combustion of a Fuel); US Pat. Pub. 2002/0012618 A1 (Plasmatron-Catalyst System).

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-38 and 49-65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim 1 recites the limitation "the gas stream" in line 8. There is insufficient antecedent basis for this limitation in the claim. It is also **unclear to the Examiner whether "the gas stream"** is the plasma stream, or whether there is another gas stream present.

9. Claims 2-14, 49, and 51-65 are rejected as inheriting the lack of antecedent basis of claim 1.

10. Claim 15 recites the limitation "the gas stream" in line 4. There is insufficient antecedent basis for this limitation in the claim. It is also **unclear to the Examiner whether "the gas stream"** is the plasma stream, or whether there is another gas stream present.

11. Claims 16-38 and 50 are rejected as inheriting the lack of antecedent basis of claim 15.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

15. Claims 1-4, 6-18, 20-33, 37-38, 49, 51-60, and 64-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatnagar et al (US 6,673,323 B1) in view of Aardahl et al (US 7,230,396 B2).

16. Regarding claim 1, Bhatnagar et al teaches a method of treating a fluorocompound-containing gas stream, the method comprising: generating a plasma stream from a plasma source gas (col. 14, lines 25-28); injecting the plasma stream through an aperture into a chamber (Fig. 3, parts 210 and 85, col. 5, lines 34-39); conveying to the plasma stream a source of ions for contacting the plasma stream to form heated ions comprising ions (col. 10, lines 49-51); and conveying the gas stream to the heated ions. (col. 10, lines 24-30)

17. Bhatnagar et al does not explicitly teach that the ions are selected from the group consisting of OH- and H+.

18. Aardahl et al teaches treating a fluorocompound-containing gas stream with ions selected from the group consisting of OH- and H+ (e.g. water or alcohols). (col. 5, lines 3-31) Aardahl et al teaches that this allows treatment of halogen-containing gases at low temperature and atmospheric pressure. (col. 2, lines 6-11)

19. Therefore, it would have been obvious to one with ordinary skill, in the art at the time of the invention, to modify the method of Bhatnagar et al by treating the fluorocompound-containing gas stream with ions selected from the group consisting of OH- and H+ as taught by Aardahl et al (e.g. water or alcohols), because this would allow treatment of halogen-containing gases at low temperature and atmospheric pressure. (see Aardahl et al, col. 2, lines 6-11)

20. Regarding claim 15, Bhatnagar et al teaches a method of treating a fluorocompound-containing gas stream, the method comprising: generating a plasma stream from a plasma source gas (col. 13, lines 31-35); adding the gas stream to the plasma stream (col. 2, lines 32-37); injecting the plasma stream and gas stream through an aperture into a chamber (Fig. 2, parts 85 and 210, col. 6, lines 14-31); and conveying to the plasma stream a source of ions. (col. 10, lines 48-51)

21. Bhatnagar et al does not explicitly teach that the ions are selected from the group consisting of OH- and H+.

22. Aardahl et al teaches treating a fluorocompound-containing gas stream with ions selected from the group consisting of OH- and H+ (e.g. water or alcohols). (col. 5, lines 3-31) Aardahl et al teaches that this allows treatment of halogen-containing gases at low temperature and atmospheric pressure. (col. 2, lines 6-11)

23. Therefore, it would have been obvious to one with ordinary skill, in the art at the time of the invention, to modify the method of Bhatnagar et al by treating the fluorocompound-containing gas stream with ions selected from the group consisting of OH- and H+ as taught by Aardahl et al (e.g. water or alcohols), because this would allow treatment of halogen-containing gases at low temperature and atmospheric pressure. (see Aardahl et al, col. 2, lines 6-11)

24. Regarding claims 2, 16, and 49, Bhatnagar et al teaches that the plasma source gas comprises an inert ionizable gas, e.g. argon. (col. 13, lines 24-35)

25. Regarding claims 3, 4, 17, and 18, Bhatnagar et al teaches the step of generating the plasma stream from a plasma source gas further comprises generating an electric field between two electrodes and conveying the plasma source gas between the electrodes to form the plasma stream, and that one of the electrodes forms at least a part of a wall of the chamber. (Fig. 3, parts 226a and 226b, col. 6, lines 44-45 and col. 7, lines 20-22)

26. Regarding claims 6-8 and 20-22, Bhatnagar et al teaches that the step of conveying to the plasma stream a source of ions may occur prior to the step of injecting the plasma stream through an aperture into the chamber (col. 10, lines 18-21), and that the step of conveying to the plasma stream the source of ions may further comprise conveying the source of ions in a stream comprising the plasma

source gas (col. 10, lines 28-32), or that the source of ions is conveyed to the plasma stream separately from the plasma source gas. (col. 10, lines 33-37)

27. Regarding claims 9-10, Bhatnagar et al teaches that the source of ions is conveyed to the chamber, and that the source of ions may be conveyed into the chamber separately from the gas stream. (col. 10, lines 28-37)

28. Regarding claim 11, Bhatnagar et al teaches that the gas stream may be conveyed directly to the chamber for reacting with the heated ions therein. (col. 6, lines 16-18)

29. Regarding claim 12, Bhatnagar et al teaches that the gas stream may be conveyed to the chamber separately from the plasma stream. (Fig. 3, parts 85, 100, 235, 240, and 245, col. 10, lines 12-17)

30. Regarding claim 13, Bhatnagar et al teaches that the gas stream may be conveyed to the heated ions through the plasma stream. (Fig. 4, parts 235 and 240, col. 10, lines 15-17 and 48-53)

31. Regarding claim 14, Bhatnagar et al teaches that the gas stream may be conveyed to the plasma stream for injection into the chamber therewith. (col. 10, lines 27-30)

32. Regarding claim 23, Bhatnagar et al teaches that the source of ions may be conveyed to the plasma stream injected into the chamber. (Fig. 4, parts 235, col. 10, lines 15-21)

33. Regarding claim 24, Bhatnagar et al teaches that the source of ions may be conveyed to the plasma stream within the gas stream. (Fig. 2, parts 85, 100, and 235, col. 13, lines 51-54)

34. Regarding claims 25 and 51, Aardahl et al teaches that the plasma stream may be generated at atmospheric pressure. (col. 8, lines 35-39)

35. Regarding claim 52, Aardahl et al teaches that the plasma stream may be generated at a pressure below atmospheric pressure. (col. 8, lines 33-39)

36. Regarding claims 26 and 53, Aardahl et al teaches that the plasma stream may be generated using a DC plasma torch (where the Examiner is construing the pulsed-DC reactor as a DC plasma torch) (col. 9, lines 14-28)

37. Regarding claims 27 and 54, Aardahl et al teaches that the source of ions may comprise water. (col. 5, lines 9 and 24)

38. Regarding claims 28 and 55, Aardahl et al teaches that the source of ions may comprise an alcohol selected from the group consisting of methanol, ethanol, propanol, propan-2-ol and butanol. (col. 5, lines 25-27)

39. Regarding claims 29 and 56, Aardahl et al teaches that the source of ions may comprise a hydrogen-containing compound selected from the group consisting of hydrogen gas, a hydrocarbon, ammonia, and a paraffin. (col. 5, lines 6-10 and 25-31)

40. Regarding claims 30, 31, 57, and 58, Aardahl et al teaches that the chamber is at a temperature in the range from ambient to 1200°C, and that the chamber may be at ambient temperature (where the Examiner is construing ambient temperature to be e.g. less than or equal to about 100 °C). (col. 8, lines 19-31 and col. 24, lines 55-56) Prior art disclosing a range overlapping the claimed range anticipates the claimed range when the reference discloses a range with sufficient specificity. See MPEP 2131.03(II).

41. Regarding claims 32 and 59, Aardahl et al teaches that the chamber may be at a temperature in the range from 400°C to 1000°C. (col. 8, lines 19-31) Prior art disclosing a range overlapping the claimed range anticipates the claimed range when the reference discloses a range with sufficient specificity. See MPEP 2131.03(II).

42. Regarding claims 33 and 60, Aardahl et al teaches that the chamber may be at a pressure in the range of 0.001 mbar to 66 mbar, or 506 mbar to 10132 mbar. (col. 8, lines 35-39) Prior art disclosing a range overlapping the claimed range anticipates the claimed range when the reference discloses a range with sufficient specificity. See MPEP 2131.03(II).

43. Regarding claims 36 and 63, Bhatnagar et al teaches the step of conveying the gas stream from the chamber to a wet scrubber. (Fig. 5, parts 270 and 275, col. 10, lines 60-63)

44. Regarding claims 37 and 64, Bhatnagar et al teaches the step of conveying the gas stream from the chamber to a reactive media (where the Examiner is construing the wet scrubber as a reactive media). (Fig. 5, parts 270 and 275, col. 10, lines 60-63)

45. Regarding claims 38 and 65, Bhatnagar et al teaches that the fluorocompound containing gas stream comprises a perfluorocompound selected from the group consisting of CF_4, C_2F_6, CHF_3, C_3F_8, C_4F_8, NF_3 and SF_6. (col. 6, lines 1-2)

46. Claims 5 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatnagar et al (US 6,673,323 B1) in view of Aardahl et al (US 7,230,396 B2) as applied to claims 1, 3, 15, and 17 above, and further in view of Radoiu, "Studies of 2.45 GHz Microwave Induced Plasma Abatement of CF_4," Environ. Sci. Technol. 2003, 37, pp. 3985-3988, Fig. 2, p. 3986, right col.

47. Regarding claims 5 and 19, Bhatnagar et al teaches a method of treating a fluorocompound-containing gas stream, the method comprising: generating a plasma stream from a plasma source gas (col. 14, lines 25-28); injecting the plasma stream through an aperture into a chamber (Fig. 3, parts 210 and 85, col. 5, lines 34-39); conveying to the plasma stream a source of ions for contacting the plasma stream to form heated ions comprising ions (col. 10, lines 49-51); and conveying the gas stream to the heated ions. (col. 10, lines 24-30); or a method of treating a fluorocompound-containing gas stream, the method comprising: generating a plasma stream from a plasma source gas (col. 13, lines 31-35); adding the gas stream to the plasma stream (col. 2, lines 32-37); injecting the plasma stream and gas stream through an aperture into a chamber (Fig. 2, parts 85 and 210, col. 6, lines 14-31); and conveying to the plasma stream a source of ions. (col. 10, lines 48-51), where the step of generating the plasma stream from a plasma source gas further comprises generating an electric field between two electrodes and conveying the plasma source gas between the electrodes to form the plasma stream, and that one of the electrodes forms at least a part of a wall of the chamber. (Fig. 3, parts 226a and 226b, col. 6, lines 44-45 and col. 7, lines 20-22)

48. Bhatnagar et al does not explicitly teach that the ions are selected from the group consisting of OH- and H+.

49. Aardahl et al teaches treating a fluorocompound-containing gas stream with ions selected from the group consisting of OH- and H+ (e.g. water or alcohols). (col. 5, lines 3-31) Aardahl et al teaches that this allows treatment of halogen-containing gases at low temperature and atmospheric pressure. (col. 2, lines 6-11)

50. Neither Bhatnagar et al nor Aardahl et al explicitly teaches that the step of injecting the plasma stream into the chamber further comprises injecting the plasma stream into the chamber through an aperture formed in one of the electrodes.

51. Radoiu teaches that a step of injecting a plasma stream into the chamber may comprise injecting the plasma stream into the chamber through an aperture formed in one of the electrodes. (p. 3986, left col., para. 5, lines 5-9) Radoiu et al teaches that this may be used to help ignite or maintain very stable plasmas from power levels as low as 300 W. (p. 3985, right col., para. 3, lines 18-24)

52. Therefore, it would have been obvious to one with ordinary skill, in the art at the time of the invention, to modify the method of Bhatnagar et al and Aardahl et al by injecting the plasma stream into the chamber through an aperture formed in one of the electrodes as taught by Radoiu et al, because this would allow ignition or maintenance of very stable plasmas from power levels as low as 300 W. (see Radoiu, p. 3985, right col., para. 3, lines 18-24)

53. Claims 34, 35, 61, and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bhatnagar et al (US 6,673,323 B1) in view of Aardahl et al (US 7,230,396 B2) as applied to claims 1 and 15 above, and further in view of Yi et al (US 6,395,144 B1).

54. Regarding claims 34, 35, 61, and 62, Bhatnagar et al teaches a method of treating a fluorocompound-containing gas stream, the method comprising: generating a plasma stream from a plasma source gas (col. 14, lines 25-28); injecting the plasma stream through an aperture into a chamber (Fig. 3, parts 210 and 85, col. 5, lines 34-39); conveying to the plasma stream a source of ions for contacting the plasma stream to form heated ions comprising ions (col. 10, lines 49-51); and conveying the gas stream to the heated ions. (col. 10, lines 24-30); or a method of treating a fluorocompound-containing gas stream, the method comprising: generating a plasma stream from a plasma source gas (col. 13, lines 31-35); adding the gas stream to the plasma stream (col. 2, lines 32-37); injecting the plasma stream and gas stream through an aperture into a chamber (Fig. 2, parts 85 and 210, col. 6, lines 14-31); and conveying to the plasma stream a source of ions. (col. 10, lines 48-51)

55. Bhatnagar et al does not explicitly teach that the ions are selected from the group consisting of OH- and H+.

56. Aardahl et al teaches treating a fluorocompound-containing gas stream with ions selected from the group consisting of OH- and H+ (e.g. water or alcohols). (col. 5, lines 3-31) Aardahl et al teaches

that this allows treatment of halogen-containing gases at low temperature and atmospheric pressure. (col. 2, lines 6-11)

57. Neither Bhatnagar et al nor Aardahl et al explicitly teaches that the step of conveying into the chamber the source of ions further comprises conveying the source of ions over a catalyst.

58. Yi et al teaches that the step of conveying into the chamber the source of ions further comprises conveying the source of ions over a catalyst, wherein the catalyst comprises a metal selected from the group consisting of tungsten, silicon, iron, rhodium, and platinum. (col. 4, lines 24-32 and col. 6, lines 50-54) Yi et al teaches that this allows treatment of fluorinated compounds (col. 4, lines 5-6) by a non-thermal plasma without arcing, i.e. generating a stable non-thermal plasma at low cost and with enhanced efficiency of treatment. (col. 2, lines 59-64)

59. Therefore, it would have been obvious to one with ordinary skill, in the art at the time of the invention, to modify the method of Bhatnagar et al and Aardahl et al by conveying the source of ions over a catalyst, wherein the catalyst comprises a metal selected from the group consisting of tungsten, silicon, iron, rhodium, and platinum, as taught by Yi et al, because this would allow treatment of fluorinated compounds by a non-thermal plasma without arcing, i.e. generating a stable non-thermal plasma at low cost and with enhanced efficiency of treatment. (see Yi et al, col. 4, lines 5-6 and col. 2, lines 59-64)

Conclusion

60. Claims 1-38 and 49-65 are REJECTED. Claims 39-48 are WITHDRAWN.

61. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 4,772,775 (Electric Arc Plasma Steam Generation); US 5,866,753 (Material Processing); US 6,620,394 B2 (Emission control for perfluorocompound gases by microwave plasma torch); US 6,635,228 B1 (Falling film plasma reactor); US 6,696,662 B2 (Methods and apparatus for plasma processing); US 6,888,040 B1 (Method and apparatus for abatement of reaction products from a vacuum processing chamber); US 6,962,679 B2 (Processes and apparatuses for treating halogen-containing gases); Hartz et al, "Innovative Surface Wave Plasma Reactor Technique for PFC Abatement," Environ. Sci. Technol. 1998, 32, pp. 682-687; Xu et al, "Plasma abatement of perfluorocompounds in inductively couple plasma reactors," J. Vac. Sci. Technol. A 18(1), Jan/Feb 2000, pp.213-231; Tonnis et al, "Inductively coupled,

point-of-use plasma abatement of perfluorinated compounds and hydrofluorinated compounds from etch processes utilizing O2 and H2O as additive gases," J. Vac. Sci. Technol. A 18(2), Mar/Apr 2000, pp. 393-400; Vitale et al, "Abatement of C2F6 in RF and microwave plasma reactors," J. Vac. Sci. Technol. A 18(5), Sept./Oct. 2000, pp. 2217-2223; Radoiu, "Studies on atmospheric plasma abatement of PFCs," Radiation Physics and Chemistry 69 (2004), pp. 113-120.

62. Any inquiry concerning this communication or earlier communications from the examiner should be directed to COLLEEN M. RAPHAEL whose telephone number is (571)270-5991. The examiner can normally be reached on Monday-Friday, 9:30 a.m. to 6:00 p.m.

63. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith D. Hendricks can be reached on (571)272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

64. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. M. R./
Examiner, Art Unit 1724
June 16, 2011

/Keith D. Hendricks/
Supervisory Patent Examiner, Art Unit 1724